=> d his

(FILE 'HOME' ENTERED AT 16:35:36 ON 10 DEC 2003)

FILE 'MEDLINE, AGRICOLA, CANCERLIT, SCISEARCH, CAPLUS, MEDICONF' ENTERED AT 16:36:14 ON 10 DEC 2003

L1 122 S CHIMERIC CHICKEN
L2 72 DUP REM L1 (50 DUPLICATES REMOVED)
L3 70888 S L2 AND (EMBRYONIC STEM CELLS) OR CES OR ES OR PGC
L4 22 S L2 AND ((EMBRYONIC STEM CELLS) OR CES OR ES OR PGC)
L5 22 SORT L4 PY

=> d an ti so au ab pi 1 3 12 13 15 18 20

L5 ANSWER 1 OF 22 SCISEARCH COPYRIGHT 2003 THOMSON ISI on STN
AN 96:822811 SCISEARCH
TI CONTRIBUTIONS TO SOMATIC AND GERMLINE LINEAGES OF CHICKEN BLASTODERMAL CELLS MAINTAINED IN CULTURE
SO MOLECULAR REPRODUCTION AND DEVELOPMENT, (NOV 1996) Vol. 45, No. 3, pp. 291-298.
ISSN: 1040-452X.
AU ETCHES R J (Reprint); CLARK M E; TONER A; LIU G D; GIBBINS A M V
AB Chicken blastodermal cells were cultured for 48 hr as explanted intact embryos, as dispersed cells in a monolayer, or with a confluent layer df mouse fibroblasts. The cells were then dispersed and injected into stage X (E-G&K) recipient embryos that were exposed to 600 rads of irradiation from a Co-60 source. Regardless of the conditions in which the cells were cultured; chimeras with contributions to both somatic tissues and the germline were observed. When blastodermal cells were cocultured with mouse embryonic fibroblasts, significantly more somatic chimeras were observed and the proportion of feather follicles derived from donor cells was increased relative to that observed following the injection of cells derived from explanted embryos or monolayer cultures. Culture of blastodermal cells in any of the systems, however, yielded fewer chimeras that exhibited reduced contributions to somatic tissues in comparison to the frequency and extent of somatic chimerism observed following injection of freshly prepared cells. Contributions to the germline were observed at an equal frequency regardless of the conditions of culture, but were significantly reduced in comparison to the frequency and rate of germline transmission following injection of cells obtained directly from stage X (E-G&K) embryos. These data demonstrate that some cells retain the ability to contribute to germline and somatic tissues after 48 hr in culture and that the ability to contribute to the somatic and germline lineages is not retained equally. (C) 1996 Wiley-Liss, Inc.

L5 ANSWER 3 OF 22 MEDLINE on STN
AN 1998113787 MEDLINE
TI Production of germline **chimeric chickens** by transfer of cultured primordial germ cells.
SO CELL BIOLOGY INTERNATIONAL, (1997 Aug) 21 (8) 495-9.
Journal code: 9307129. ISSN: 1065-6995.
AU Chang I K; Jeong D K; Hong Y H; Park T S; Moon Y K; Ohno T; Han J Y
AB Primordial germ cells (**PGCs**) from stage 27 (5.5-day-old) Korean native ogol chicken embryonic germinal ridges were cultured in vitro for 5 days. As in in vivo culture, these cultured **PGCs** were expected to have already passed beyond the migration stage. Approximately 200 of these **PGCs** were transferred into 2.5-day-old white leghorn embryonic blood stream, and then the recipient embryos were incubated until hatching. The rate of hatching was 58.8% in the manipulated eggs. Six out of 60 recipients were identified as germline **chimeric chickens** by their feather colour. The frequency of germline transmission of donor **PGCs** was 1.3-3.1% regardless of sex. The stage 27 **PGCs** will be very useful for collecting large numbers of **PGCs**, handling of exogenous DNA transfection during culture, and for the production of desired transgenic chickens.

L5 ANSWER 12 OF 22 MEDLINE on STN
AN 2001017530 MEDLINE
TI Derivation and characterization of pluripotent embryonic germ cells in chicken.

SO MOLECULAR REPRODUCTION AND DEVELOPMENT, (2000 Aug) 56 (4) 475-82.
Journal code: 8903333. ISSN: 1040-452X.
AU Park T S; Han J Y
AB Embryonic germ (EG) cell lines established from primordial germ cells (**PGCs**) are undifferentiated and pluripotent stem cells. To date, EG cells with proven germ-line transmission have been completely established only in the mouse with embryonic stem (**ES**) cells. We isolated **PGCs** from 5.5-day-old (stage 28) chicken embryonic gonads and established a putative chicken EG cell line with EG culture medium supplemented with stem cell factor (SCF), leukemia inhibitory factor (LIF), basic fibroblast growth factor (bFGF), interleukin-11 (IL-11), and insulin-like growth factor-I (IGF-I). These cells grew continuously for ten passages (4 months) on a feeder layer of mitotically active chicken embryonic fibroblasts. After several passages, these cells were characterized by screening with the periodic acid-Schiff reaction, anti-SSEA-1 antibody, and a proliferation assay. The chicken EG cells maintained characteristics of gonadal **PGCs** and undifferentiated stem cells. When cultured in suspension, the chicken EG cells successfully formed an embryoid body and differentiated into a variety of cell types. The chicken EG cells were injected into stage X blastodermal layer and produced **chimeric chickens** with various differentiated tissues derived from the EG cells. Chicken EG cells will be useful for the production of transgenic chickens and for studies of germ cell differentiation and genomic imprinting.

L5 ANSWER 13 OF 22 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved. (2003) on STN
AN 2001:48187 AGRICOLA
TI Possible abnormalities of **chimeric chicken** caused by the introduction of exogenous genes into chicken embryos via primordial germ cells (**PGCs**).
SO Asian-Australasian journal of animal sciences, Nov 2000. Vol. 13, No. 11. p. 1514-1517
Publisher: Seoul, Korea : AAAP and Korean Society of Animal Nutrition.
CODEN: AJASEL; ISSN: 1011-2367
AU Ebara, F.; Fujihara, N.

L5 ANSWER 15 OF 22 SCISEARCH COPYRIGHT 2003 THOMSON ISI on STN
AN 2000:607205 SCISEARCH
TI Transgenic chickens: Past, present, and future
SO AVIAN AND POULTRY BIOLOGY REVIEWS, (AUG 2000) Vol. 11, No. 2, pp. 63-80.
Publisher: SCIENCE & TECHNOLOGY LETTERS, PO BOX 81, NORTHWOOD HA6 3DN, MIDDX, ENGLAND.
ISSN: 1470-2061.
AU Zajchowski L D; Etches R J (Reprint)
AB Transgenic chickens hold great promise in basic biological research and in industrial applications. A number of different strategies designed to allow the manipulation of the avian genome have been investigated with varying degrees of success. Infection of chick embryos with retroviral vectors has successfully produced transgenic chickens by exploiting the natural abilities of retroviruses to enter cells and integrate into the host chromosomes. However, technical and safety considerations limit the usefulness of retrovirus-mediated gene transfer, particularly in agricultural applications. Microinjection of DNA into the fertilized ovum has also successfully produced transgenic birds. Unfortunately, microinjection is a difficult procedure which is only rarely successful. The direct transfection of early embryos in ovo has been attempted, but only transient gene expression has been observed. Sperm-mediated gene transfer has been suggested, as DNA can associate with chicken sperm cells, however, no transgenic chickens with stably integrated transgenes have been produced by this method. Transgenesis via the use of chimeric intermediates constructed with primordial germ cells or blastodermal cells has been proposed to allow precisely designed gene targeting experiments to be carried out. While it is now possible to routinely produce chimeras using both primordial germ cells and blastodermal cells, long-term culture techniques which would permit the genetic modification of blastodermal or primordial germ cells by homologous recombination in vitro are not yet available. Overall, despite significant progress, much research is still

required in order to establish practical, efficient and economical techniques for the production of transgenic chickens.

L5 ANSWER 18 OF 22 CAPLUS COPYRIGHT 2003 ACS on STN
AN 2002:550956 CAPLUS
DN 138:33886
TI Expression of exogenous genes at the germinal ridge of germline **chimeric chickens**
SO Animal Cell Technology: Basic & Applied Aspects, Proceedings of the Annual Meeting of the Japanese Association for Animal Cell Technology, 13th, Fukuoka and Karatsu, Japan, Nov. 16-21, 2000 (2002), Meeting Date 2000, 275-279. Editor(s): Shirahata, Sanetaka; Teruya, Kiichiro; Katakura, Yoshinori. Publisher: Kluwer Academic Publishers, Dordrecht, Neth. CODEN: 69CWTU; ISBN: 1-4020-0271-8
AU Furuta, H.; Fujihara, N.
AB The present expt. was designed to elucidate whether transgenic offspring may be produced via germline **chimeric chicken**. Firstly, germline **chimeric chickens** were produced via inter-embryonic transfer of primordial germ cells (**PGCs**) using Rhode Island Red (RIR) chickens and White Leghorn (WH) hens as donor and recipient birds. The **PGCs** were introduced into the early stage of developmental embryos by using green fluorescent protein (GFP) or Miw Z as marker genes. The introduction of exogenous genes was conducted to blastoderm or germinal crescent of the embryos with lipofection or electroporation methods. Secondly, the **PGCs** obtained from the donor embryos (RIR) were injected into embryonic blood vessels of the recipient embryos (WL). The expression of exogenous genes GFP and Miw Z transferred from the RIR embryos was confirmed in germinal ridge of recipient WL embryos. The survival rate of the recipient embryos at stage 24 - 26 was ranged from 38% to 50%. The results from the present expts. indicate that transgenic offspring could be produced via the **PGCs** obtained from germline **chimeric chickens**.

L5 ANSWER 20 OF 22 SCISEARCH COPYRIGHT 2003 THOMSON ISI on STN
AN 2003:484881 SCISEARCH
TI The investigation of cell culture conditions to maintain chicken **embryonic stem cells** as totipotent cells
SO ASIAN-AUSTRALASIAN JOURNAL OF ANIMAL SCIENCES, (AUG 2003) Vol. 16, No. 8, pp. 1102-1107.
Publisher: ASIAN-AUSTRALASIAN ASSOC ANIMAL PRODUCTION SOCIETIES, COLLEGE AGRICULTURE LIFE SCIENCES, DEPT ANIMAL SCIENCE TECHNOLOGY, SUWON 441-744, SOUTH KOREA.
ISSN: 1011-2367.
AU Du L X (Reprint); Jing A
AB The **ES** cell can provide a useful system for studying differentiation and development in vitro and a powerful tool for producing transgenic animalds. To investigate the culture condition of chicken embryonic stem (**CES**) cells which can retain their multipotentiality or totipotency, three kinds of feeder layer cells, SNL cells, primary mice embryonic fibroblasts (PMEF) cells and primary chicken embryonic fibroblasts (PCEF) cells, were used as the feeder cells in media of DMEM supplemented with leukemia inhibitory factor (LIF), basic fibroblast growth factor (bFGF) and stem cell factor (SCF) for co-culture with blastoderm cells from stage X embryos of chicken. The alkaline phosphatase (AKP) test, differentiation experiment in vitro and **chimeric chicken** production were carried out. The results showed that culture on feeder layer of PMEF yielded high quality **CES** cell colonies. The typical **CES** cells clone shape revealed as follows: nested aggregation (clone) with clear edge and round surface as well as close arrangement within the clone. Strong alkaline phosphatase (AKP) reactive cells were observed in the fourth passage cells. On the other hand, the fourth passage **CES** cells could differentiate into various cells in the absence of feeder layer cells and LIF in vitro. The third and fourth passage cells were injected into the subgerminal cavity of recipient embryos at stage X. Of 269 Hailan embryos injected with **CES** cells of Shouguang Chickens, 8.2% (22/269) survived to hatching, 5 feather chimeras had been produced. This suggests that an effective culture system established in this study can promote the growth of **CES** cells and maintain them in the state of undifferentiated and development, which lays a solid foundation for the

application of **CES** cells and may provide an alternative tool for genetic modification of chickens.